

CLAIMS

What is claimed is:

1. A method of forming an active layer on an active surface,
said method comprising:
 - 5 selecting a liquid composition comprising at least one liquid medium
and at least one active material;
selecting an active surface; and
depositing the liquid composition onto the active surface;
wherein, a contact angle of the liquid composition on the active surface is
10 no greater than about 40°.
 2. A method according to Claim 1, wherein the depositing the
composition is discontinuous.
 3. A method according to Claim 1, wherein the depositing is
carried out by a process selected from ink jet printing, screen printing, and
15 thermal transfer.
 4. A method of forming an active material layer on an active
surface, said method comprising;
selecting an active surface having a first surface tension;
treating the active surface resulting in a treated surface, wherein the
20 treated surface has a second surface tension, and wherein the
second surface tension is greater than the first surface tension;
and
selecting a liquid composition comprising at least one liquid medium
wherein said liquid medium has a surface tension that is greater
25 than the first surface tension of the selected active surface, and
at least one active material; and
depositing the composition onto the treated surface.
 5. A method according to Claim 4, wherein the active surface
has been treated by at least one of the following treatments including
30 chemical etching, electrochemical reduction, corona discharge, plasma
etching, ion beam treatment, electron beam treatment, laser ablation,
photochemical treatment, applying at least one adhesion layer and
combinations thereof.
 6. A method according to Claim 4, wherein a contact angle of
35 the liquid composition on the treated active surface is no greater than 40°.
 7. A method according to Claim 5, wherein an adhesion layer
comprises at least one material that is selected from metals, metal oxides,
metal complexes, hydrophilic organic materials, and combinations thereof.

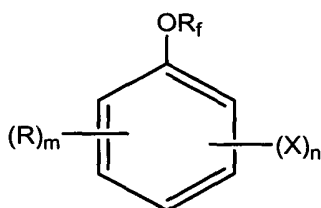
8. A method according to Claim 5, wherein an adhesion layer comprises at least one material that is selected from silica, alumina, metal phthalocyanines, and metal chelated oxinoid compounds and mixtures thereof.

5 9. A method of forming an active material layer on an active surface, said method comprising;
selecting an active surface comprising a fluorinated material;
selecting a liquid composition comprising at least one liquid medium
and at least one active material; and
10 depositing the liquid composition onto the active surface,
wherein, the composition liquid comprises at least one fluorinated compound.

10. A method according to Claim 9, wherein the liquid medium is a fluorinated compound.

15 11. A method according to Claim 10, wherein the active surface comprises a material selected from polyaniline combined with a fluorinated polymeric sulfonic acid, a polythiophene combined with a fluorinated polymeric sulfonic acid, a poly(dioxythiophene) combined with a fluorinated polymeric sulfonic acid, and mixtures thereof.

20 12. A method according to Claim 11, wherein the liquid medium comprises at least one compound that is selected from compounds having the structure



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wherein:

R is C_1 - C_{10} alkyl, C_1 - C_{10} alkoxy, or C_1 - C_{10} oxyalkyl,

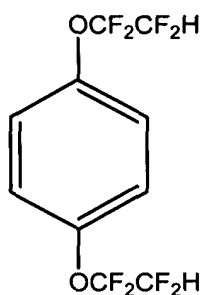
30 R_f is C_1 - C_{10} fluorinated alkyl, C_1 - C_{10} fluorinated alkenyl, C_1 - C_{10} fluorinated oxyalkyl, or C_1 - C_{10} fluorinated oxyalkenyl,

X is H, F, Cl, Br, C_1 - C_{10} alkyl, C_1 - C_{10} alkoxy C_1 - C_{10} oxyalkyl, C_1 - C_{10} fluorinated alkyl, C_1 - C_{10} fluorinated alkenyl, C_1 - C_{10} fluorinated oxyalkyl, or C_1 - C_{10} fluorinatedoxyalkenyl,

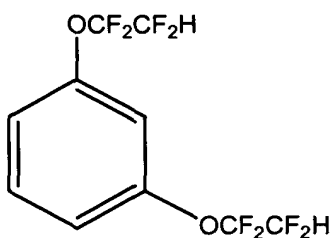
m is from 0-5, and

n is from 0-5, wherein $m + n$ is no greater than 5.

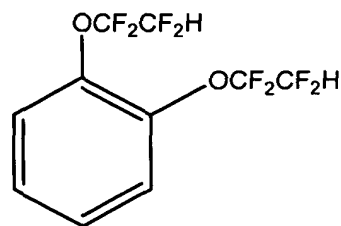
13. A method according to Claim 12, wherein the liquid medium comprises a material selected from compounds A through O and mixtures thereof:



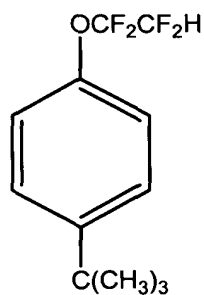
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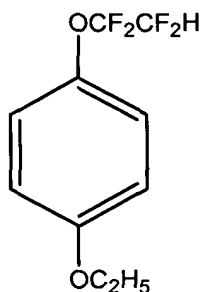
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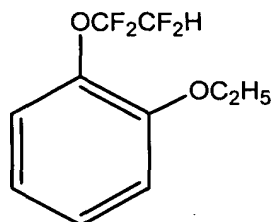
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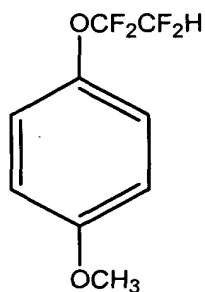
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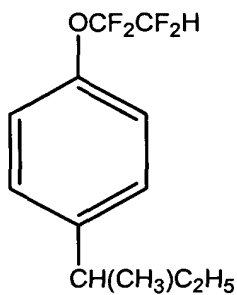
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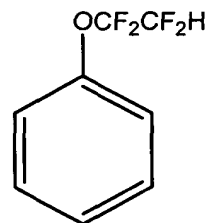
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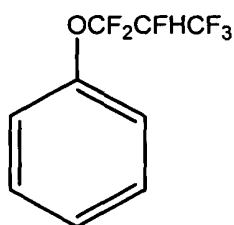
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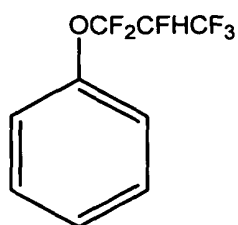
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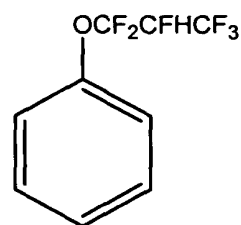
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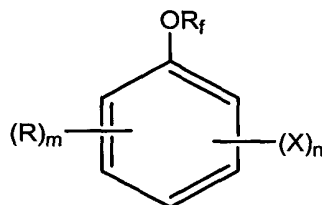
O

14. A method according to Claim 10, wherein the active material
5 is electroluminescent.

15. A composition for depositing an active material onto a
surface, said composition comprising:

the active material; and

at least one material selected from compounds having the structure



10

wherein:

R is C₁-C₁₀ alkyl, C₁-C₁₀ alkoxy, or C₁-C₁₀ oxyalkyl,

15 R_f is C₁-C₁₀ fluorinated alkyl, C₁-C₁₀ fluorinated alkenyl, C₁-C₁₀
fluorinated oxyalkyl, or C₁-C₁₀ fluorinated oxyalkenyl,

X is H, F, Cl, Br, C₁-C₁₀ alkyl, C₁-C₁₀ alkoxy C₁-C₁₀ oxyalkyl, C₁-C₁₀
fluorinated alkyl, C₁-C₁₀ fluorinated alkenyl, C₁-C₁₀ fluorinated
oxyalkyl, or C₁-C₁₀ fluorinated oxyalkenyl,

20 m is from 0-5, and

n is from 0-5, wherein m + n is no greater than 5.

16. An organic electronic device comprising at least one first
active layer and at least one second active layer comprising at least
25 one active material, wherein (a) the active material in the second

active layer is deposited on the first active layer from a liquid composition having a contact angle with the first layer of no greater than about 40°; or

5 (b) at least one first active layer having an active surface was treated, such that its surface tension after treatment was greater than its surface before treatment, and wherein a liquid composition comprising at least one liquid medium, having a surface tension that is greater than the first surface tension of the selected active
10 surface, and at least one active material, and depositing the liquid composition onto the treated active surface of the first active layer; or

15 (c) where both (a) and (b) are practiced on the same first active layer or different first active layers.

17. An organic electronic device comprising at least one first active layer and at least one second active layer comprising at least one active material, wherein
20 the first active layer comprises a fluorinated material, and the active material in the second active layer is deposited on the first active layer from a liquid composition comprising at least one fluorinated compound.

18. An electronic device according to Claims 17 or 16, wherein
25 the first active layer comprises a material selected from polyaniline combined with a fluorinated polymeric sulfonic acid, a polythiophene combined with a fluorinated sulfonic acid, a poly(dioxythiophene) combined with a fluorinated polymeric sulfonic acid, and mixtures thereof.

19. An electronic device according to Claim 16 or 17, wherein at
30 least one active material is photoactive.

20. An electronic device according to Claim 16 or 17, wherein the active material is deposited by a discontinuous method.

21. An organic electronic device of claim 16 or 17 wherein said device selected from devices that converts electrical energy into radiation,
35 detects signals through electronics processes, converts radiation into electrical energy, or includes one or more electronic components that include one or more organic semi-conductor layers.